Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1-20. Canceled.

21. (New) In a system including a storage device, equipped with a real volume, a virtualization device coupled to said storage device by way of a network and managing a virtual volume which is related to said real volume of said storage device, and a management server coupled to said storage device and said virtualization device by way of a management network, a method for managing failure information comprising:

a failure notification step in which said management server receives a first failure notification related to said virtual volume from said virtualization device and a second failure notification related to said real volume from said storage device;

an associating step in which said management server associates said first failure notification and said second failure notification based on relationship information between said real volume and said virtual volume; and

a failure message outputting step for outputting results indicating that said first and second failure notifications are associated.

22. (New) A method for managing failure information as described in claim 21, wherein said associating step includes a step of associating said first and second failure notifications if said first and second failure notifications are issued within a fixed time interval.

23. (New) A method for managing failure information as described in claim 21, further comprising:

receiving, in said management server, configuration information about said network from a device coupled to said network; and

associating said first and second failure notifications based on said relationship information between said real volume and said virtual volume and said configuration information.

24. (New) A method for managing failure information as described in claim 21, wherein:

said associating step includes a step of identifying a causal relationship between said first and second failure notifications based on said relationship information between said real volume and said virtual volume; and

said outputting step includes a step of displaying said identified causal relationship.

25. (New) A method for managing failure information as described in claim 24, wherein said step of identifying causal relationship includes:

identifying, out of said first and second failure notifications, a hardware failure notification notifying a hardware malfunction as a failure and an access failure notification notifying an access error as a failure issued under influence of said hardware malfunction.

26. (New) A method for managing failure information as described in claim 21, further comprising:

receiving, in said management server, a first severity information contained in said first failure notification, indicating a severity of failure based on a first standard,

receiving, in said management server, a second severity information contained in said second failure notification, indicating severity of failure based on a second standard,

converting said first and second severity information to a third severity information based on a common standard; and

outputting, by said management server, failure information based on said third severity information.

27. (New) A method for managing failure as described in claim 21, wherein the relationship information, stored in the memory, includes information of a logical unit number of said virtual volume and its corresponding logical unit number of said real volume.

28. (New) A method for managing failure as described in claim 27, wherein said first failure notification includes first information regarding said logical unit number of said virtual volume and said second failure notification includes second information regarding said logical unit number of said real volume.

29. (New) A method for managing failure as described in claim 21, wherein said first failure notification includes first information regarding a logical unit number of said virtual volume and said second failure notification includes second information regarding a logical unit number of said real volume.

30. (New) A management server coupled by way of a management network to a storage device including a real volume and a virtualization device coupled by way of a network to said storage device, said virtualization device providing a virtual volume by using said real volume in said storage device, said management server comprising:

an interface control module coupled to said management network;

a processor coupled to said interface control module;

a memory, coupled to said processor, which stores a program executed by said processor and information used by said processor; and

an output module, coupled to said processor, which outputs processing results from operations executed by said processor,

wherein said interface control module receives a plurality of failure notifications from said storage device and said virtualization device,

said processor associates a first failure notification of said plurality of failure notifications indicating an error of said virtual volume with a second failure notification of the plurality of failure notifications indicating an error of said real volume based on relationship information, stored in the memory, between said real volume and said virtual volume; and

said output module outputs results from said processor indicating that said first and second failure notifications are associated.

31. (New) A management server as described in claim 30, wherein said processor associates said first and second failure notifications if said first and second failure notifications are issued within a fixed time interval.

32. (New) A management server as described in claim 30, wherein:

said interface control module receives configuration information about said network from a device coupled to said network; and

said processor associates said first and second failure notifications based on said relationship information between said real volume and said virtual volume and said configuration information.

33. (New) A management server as described in claim 30, wherein:

said processor identifies a causal relationship between said first and second failure notifications based on said relationship information between said real volume and said virtual volume; and

said output module outputs said identified causal relationship.

34. (New) A management server as described in claim 33, wherein:

said processor identifies, out of said first and second failure notifications, a hardware failure notification indicating a hardware malfunction and an access failure notification indicating an access error issued under influence of said hardware malfunction.

35. (New) A management server as described in claim 30, wherein:

said processor receives a first severity information contained in said first failure notification, indicating severity of failure information based on a first standard,

and a second severity information contained in said second failure notification, indicating severity of failure information based on a second standard, and converts said first and second severity information to a third severity information based on a common standard; and

said output module outputs failure information based on said third severity information.

36. (New) A management server as described in claim 30, wherein the relationship information, stored in the memory, includes information of a logical unit number of said virtual volume and its corresponding logical unit number of said real volume.

37. (New) A management server according to claim 36, wherein said first failure notification includes first information regarding said logical unit number of the said virtual volume and said second failure notification includes second information regarding said logical unit number of said real volume.

38. (New) A management server according to claim 30, wherein said first failure notification includes first information regarding a logical unit number of the said virtual volume and said second failure notification includes second information regarding a logical unit number of said real volume.

39. (New) A management server according to claim 30 further comprising a display device coupled to said processor,

wherein the processor outputs the results to the display device, and

wherein the display device displays the results.

40. (New) In a system comprising a computer, a virtualization device coupled to the computer, a plurality of storage systems coupled to the virtualization device, and a management computer coupled to the plurality of storage systems and the virtualization device, the management computer comprising:

an interface coupled to the plurality of storage systems and the virtualization device; and

a processor coupled to the interface,

wherein the processor receives volume information from the plurality of storage systems and virtual volume information from the virtualization device via the interface,

wherein the volume information includes configuration information of a plurality of volumes constructed in the plurality of storage systems, and the virtual volume information includes configuration information of a plurality of virtual volumes in the virtualization device related to a one or some of the plurality of volumes,

wherein the processor receives a first error notification from the virtualization device and a second error notification from a one of the plurality of storage systems via the interface,

wherein the processor identifies whether or not an issuance of the second error notification causes an issuance of the first error notification based on a relationship between the volume information and the virtual volume information, and, if the issuance of the second error notification causes the issuance of the first error notification, outputs first information indicating that a first failure notified by the second error notification is a causal error of the first error notification.

41. (New) A management computer according to claim 40,

wherein, if the issuance of the second error notification does not cause the issuance of the first error notification, the processor outputs second information indicating that the first failure and a second failure notified by the first error notification are independent of each other.

42. (New) A management computer according to claim 41,

wherein, if the failure is a hardware error of the one of the plurality of storage systems and the second failure is an access error between the one of the plurality of storage systems and the virtualization device, the processor identifies that the

issuance of the second error notification causes the issuance of the first error notification.

43. (New) A management computer according to claim 42,

wherein, if the second failure is a hardware error of the virtualization device, the processor identifies that the issuance of the second error notification does not cause the issuance of the first error notification.

44. (New) A management computer according to claim 43,

wherein the first and second error notification are sent by using SNMP protocol.

45. (New) In a system having a computer, a virtualization device coupled to the computer, a plurality of storage systems coupled to the virtualization device, and a management computer coupled to the plurality of storage systems and the virtualization device, the management computer comprising:

a processor; and

an interface coupled to the plurality of storage systems, the virtualization device and the processor,

wherein the processor receives volume information from the plurality of storage systems and virtual volume information from the virtualization device via the interface,

wherein the volume information includes configuration information of a plurality of volumes constructed in the plurality of storage systems and the virtual volume information includes configuration information of a plurality of virtual volumes, in the virtualization device, associated with a one or some of the plurality of volumes,

wherein the processor receives a first notification from the virtualization device and a second notification from a one of the plurality of storage systems via the interface,

wherein the first notification indicates a first failure of a first virtual volume of the plurality of virtual volumes and the second notification indicates a second failure of the one of the plurality of storage systems which includes a first volume of the plurality of volumes,

wherein the processor identifies whether the first virtual volume is related to the first volume or not based on the virtual volume information and the volume information,

wherein, if the first virtual volume is related to the first volume, the processor identifies whether or not the second failure causes issuance of the first notification, and, if the second failure causes the issuance of the first notification, outputs information indicating that the second failure is a causal error of the first notification.

46. (New) A management computer according to claim 45,

wherein, if the second failure is a hardware error of the one of the plurality of storage systems and the first failure is an error of accessing the first virtual volume, the processor identifies that the second failure causes the issuance of the first notification.

47. (New) A management computer according to claim 45,

wherein, if the first failure is a hardware error of the virtualization device, the processor identifies that the second failure does not cause the issuance of the first notification.

48. (New) A management computer according to claim 47,

wherein the first and second notification are sent by using SNMP protocol.

49. (New) In a system comprising a computer, a virtualization device coupled to the computer, a plurality of storage systems coupled to the virtualization device, and a management computer coupled to the plurality of storage systems and the virtualization device, the virtualization device providing a virtual volume to the computer, the management computer comprising:

an interface, coupled to the plurality of storage systems and the virtualization device, configured to receive volume information from the plurality of storage systems and virtual volume information from the virtualization device, and to receive a first error notification from the virtualization device and a second error notification from a one of the plurality of storage systems, the volume information which includes configuration information of a plurality of volumes constructed in the plurality of storage systems, and the virtual volume information which includes configuration information of a plurality of virtual volumes in the virtualization device related to a one or some of the plurality of volumes; and

a processor, coupled to the interface, configured to identify whether or not an issuance of the second error notification causes an issuance of the first error notification based on a relationship between the volume information and the virtual volume information, and, if the issuance of the second error notification causes the issuance of the first error notification, output information indicating that a failure notified by the second error notification is a causal error of the first error notification so that a display device is capable to display a real error based on a received notifications.

50. (New) In a system comprising a computer, a virtualization device coupled to the computer, a plurality of storage systems coupled to the virtualization device, and a management computer coupled to the plurality of storage systems and the

virtualization device, the virtualization device providing virtual volume to the computer, the management computer comprising:

an interface, coupled to the plurality of storage systems and the virtualization device, configured to receive volume information from the plurality of storage systems, virtual volume information from the virtualization device, a first notification from the virtualization device and a second notification from a one of the plurality of storage systems, the volume information which includes configuration information of a plurality of volumes constructed in the plurality of storage systems and the virtual volume information which includes configuration information of a plurality of virtual volumes, in the virtualization device, related to a one or some of the plurality of volumes, the first notification which indicates a first failure of a first virtual volume of the plurality of virtual volumes and the second notification which indicates a second failure of the one of the plurality of storage systems which includes a first volume of the plurality of volumes;

a processor, coupled to the interface, configured to identify whether or not the first virtual volume is related to the first volume based on the virtual volume information and the volume information, to identify whether or not the second failure causes issuance of the first notification if the first virtual volume is related to the first volume, and to output information indicating that the second failure is a causal error of the first notification if the second failure causes the issuance of the first notification; and

a display device, coupled to the processor, configured to display the information that is output.

51. (New) A management computer according to claim 40, wherein said first error notification includes first information regarding a logical unit number of said plurality of virtual volumes and said second error notification includes second information regarding a logical unit number of said plurality of volumes.

52. (New) A management computer according to claim 45, wherein said first notification includes first information regarding a logical unit number of said first virtual volume and said second notification includes second information regarding a logical unit number of first volume.

53. (New) A management computer according to claim 49, wherein said first error notification includes first information regarding a logical unit number of said plurality of virtual volumes and said second error notification includes second information regarding a logical unit number of said plurality of volumes.

54. (New) A management computer according to claim 50, wherein said first notification includes first information regarding a logical unit number of said first virtual volume and said second notification includes second information regarding a logical unit number of first volume.